NATA LIGHTING CO.,LTD.
www.nata.cn
Email:info@nata.com
Tel:+86-750-3770000 Fax:+86-750-3771111
Address:380JinOu Road,GaoXin Zone,Jiang Men City,Guangdong,China

Nata

Client:
LumCAT: 2-2076-M
Luminaire: 92.70.129.00
Report No: GC2019091909
Test No:
LampCAT: CREE CXA1830
Lamp flux(lm): 2331.4
Number of Lamps: 1
Length(mm): 0
Phm Type: C

Voltage(V):
Current(A):
Power (W): 15.5700
PF:
Ballast type:
Width(mm): 0
Height(mm): 0

Photometric Results

Lumens(lm): 1888.43, Efficiency(%): 81.00% , Luminous Efficacy(lm/W): 121.29
Central intensity(cd): 14118.750, Maximum intensity(cd): 14118.750
Angle of maximum intensity: C=0.0 γ=0.0
Beam Angle(50%Imax): [C0/180]Total=18.0
[C90/270]Total=18.0
Field angle(10%Imax): [C0/180]Total=38.0
[C90/270]Total=38.0
Maximum s/h(1/2): C0_180=0.31 C90_270=0.31
Maximum s/h(1/4): C0_180=0.32 C90_270=0.32
Up flux rate of lamp(%): 0.00%
Down flux rate of lamp(%): 81.00%
Up flux rate of LUM(%): - -
Down flux rate of LUM(%): 100.00%
CIE Type : Direct lighting
Output flux ratio in π solid angle : 98.549%

Zonal flux distribution table

γ(°)	Average I(cd)	Zonal F(lm)	Sum F(lm)	Eff Flux(%)	Eff Sum(%)
0.0	14118.750	0.000	0	.000%	.000%
1.0	14052.656	13.479	13.479	.578%	.714%
2.0	13805.859	39.985	53.465	1.715%	2.831%
3.0	13282.031	64.785	118.25	2.779%	6.262%
4.0	12425.203	86.050	204.3	3.691%	10.819%
5.0	11369.953	102.366	306.666	4.391%	16.239%
6.0	10423.477	114.530	421.196	4.913%	22.304%
7.0	9232.594	122.005	543.201	5.233%	28.765%
8.0	8162.930	124.496	667.697	5.340%	35.357%
9.0	7028.930	123.122	790.819	5.281%	41.877%
10.0	6016.078	118.053	908.872	5.064%	48.128%
11.0	5195.602	112.028	1020.899	4.805%	54.061%
12.0	4396.500	104.855	1125.755	4.498%	59.613%
13.0	3733.945	96.488	1222.243	4.139%	64.723%
14.0	3206.039	88.831	1311.074	3.810%	69.426%
15.0	2787.047	82.276	1393.35	3.529%	73.783%
16.0	2398.571	75.984	1469.334	3.259%	77.807%
17.0	2017.055	68.763	1538.097	2.949%	81.448%
18.0	1691.578	61.147	1599.244	2.623%	84.686%
19.0	1402.003	53.822	1653.066	2.309%	87.536%
20.0	1140.933	46.543	1699.609	1.996%	90.001%
21.0	904.346	39.273	1738.882	1.685%	92.081%
22.0	688.732	32.014	1770.896	1.373%	93.776%
23.0	483.061	24.587	1795.483	1.055%	95.078%
24.0	309.565	17.330	1812.813	.743%	95.996%
25.0	194.442	11.460	1824.273	.492%	96.602%
26.0	82.413	6.535	1830.808	.280%	96.948%
27.0	33.532	2.837	1833.645	.122%	97.099%
28.0	20.595	1.370	1835.015	.059%	97.171%
29.0	18.436	1.021	1836.036	.044%	97.225%
30.0	17.002	0.957	1836.993	.041%	97.276%
31.0	15.743	0.911	1837.904	.039%	97.324%
32.0	14.625	0.870	1838.774	.037%	97.370%
33.0	13.824	0.838	1839.612	.036%	97.415%
34.0	13.106	0.815	1840.427	.035%	97.458%
35.0	12.516	0.796	1841.223	.034%	97.500%
36.0	12.031	0.782	1842.005	.034%	97.541%
37.0	11.623	0.771	1842.776	.033%	97.582%

Zonal flux distribution table

γ(°)	Average I(cd)	Zonal F(lm)	Sum F(lm)	Eff Flux(%)	Eff Sum(%)
38.0	11.271	0.764	1843.54	.033%	97.623%
39.0	10.955	0.759	1844.299	.033%	97.663%
40.0	10.730	0.756	1845.055	.032%	97.703%
41.0	10.505	0.756	1845.811	.032%	97.743%
42.0	10.315	0.756	1846.568	.032%	97.783%
43.0	10.160	0.758	1847.326	.033%	97.823%
44.0	10.034	0.762	1848.088	.033%	97.864%
45.0	9.921	0.767	1848.855	.033%	97.904%
46.0	9.823	0.772	1849.627	.033%	97.945%
47.0	9.724	0.777	1850.405	.033%	97.986%
48.0	9.640	0.783	1851.188	.034%	98.028%
49.0	9.563	0.789	1851.976	.034%	98.069%
50.0	9.478	0.794	1852.77	.034%	98.111%
51.0	9.408	0.799	1853.569	.034%	98.154%
52.0	9.366	0.806	1854.375	.035%	98.196%
53.0	9.302	0.812	1855.187	.035%	98.239%
54.0	9.246	0.818	1856.004	.035%	98.283%
55.0	9.197	0.823	1856.828	.035%	98.326%
56.0	9.148	0.829	1857.657	.036%	98.370%
57.0	9.106	0.835	1858.491	.036%	98.414%
58.0	9.056	0.840	1859.331	.036%	98.459%
59.0	9.021	0.845	1860.176	.036%	98.504%
60.0	9.000	0.851	1861.028	.037%	98.549%
61.0	8.958	0.857	1861.885	.037%	98.594%
62.0	8.909	0.861	1862.746	.037%	98.640%
63.0	8.923	0.867	1863.613	.037%	98.686%
64.0	8.874	0.873	1864.486	.037%	98.732%
65.0	8.845	0.877	1865.363	.038%	98.778%
66.0	8.824	0.882	1866.245	.038%	98.825%
67.0	8.803	0.886	1867.131	.038%	98.872%
68.0	8.789	0.891	1868.022	.038%	98.919%
69.0	8.768	0.896	1868.918	.038%	98.966%
70.0	8.754	0.900	1869.818	.039%	99.014%
71.0	8.747	0.905	1870.722	.039%	99.062%
72.0	8.733	0.909	1871.631	.039%	99.110%
73.0	8.719	0.913	1872.544	.039%	99.159%
74.0	8.691	0.915	1873.459	.039%	99.207%
75.0	8.677	0.918	1874.377	.039%	99.256%

Zonal flux distribution table

γ(°)	Average I(cd)	Zonal F(lm)	Sum F(lm)	Eff Flux(%)	Eff Sum(%)
76.0	8.684	0.922	1875.298	.040%	99.304%
77.0	8.663	0.925	1876.223	.040%	99.353%
78.0	8.670	0.928	1877.151	.040%	99.402%
79.0	8.670	0.932	1878.083	.040%	99.452%
80.0	8.656	0.934	1879.017	.040%	99.501%
81.0	8.649	0.936	1879.952	.040%	99.551%
82.0	8.656	0.938	1880.891	.040%	99.601%
83.0	8.635	0.940	1881.831	.040%	99.650%
84.0	8.641	0.941	1882.772	.040%	99.700%
85.0	8.656	0.944	1883.716	.040%	99.750%
86.0	8.670	0.947	1884.663	.041%	99.800%
87.0	8.599	0.945	1885.608	.041%	99.850%
88.0	8.599	0.942	1886.55	.040%	99.900%
89.0	8.592	0.942	1887.492	.040%	99.950%
90.0	8.599	0.943	1888.435	.040%	100.000%

Zonal flux distribution table

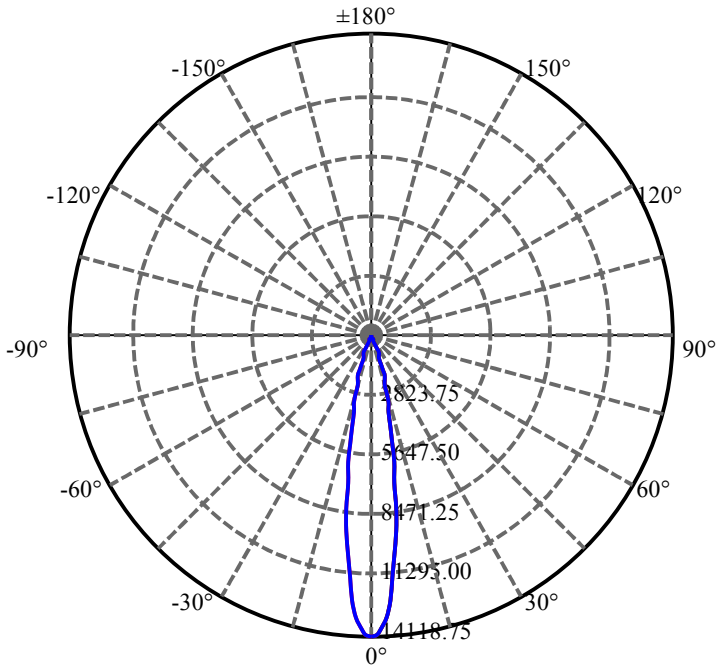
ZONAL LUMEN SUMMARY

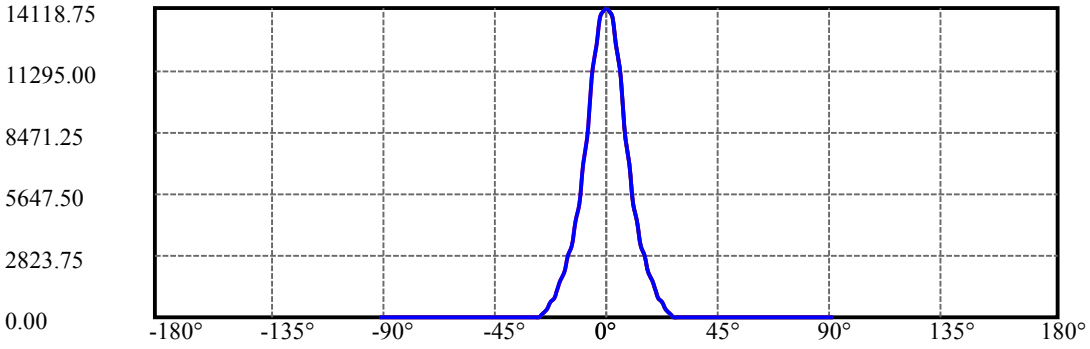
Zone	Lumens	%Lamp	%Fixt
0-30	1836.99	78.79%	97.28%
0-40	1845.06	79.14%	97.70%
0-60	1861.03	79.83%	98.55%
0-90	1887.49	80.96%	99.95%
0-120	1887.49	80.96%	99.95%
0-180	1888.43	81.00%	100.00%
60-90	27.32	1.17%	1.45%
90-120	0.00	0.00%	0.00%
90-130	0.00	0.00%	0.00%
90-150	0.00	0.00%	0.00%
90-180	0.00	0.00%	0.00%
0-16.60	1510.75	64.80%	80.00%

ZONAL LUMEN SUMMARY

0-10	908.87
10-20	790.74
20-30	137.38
30-40	8.06
40-50	7.71
50-60	8.26
60-70	8.79
70-80	9.20
80-90	8.48
90-100	0.00
100-110	0.00
110-120	0.00
120-130	0.00
130-140	0.00
140-150	0.00
150-160	0.00
160-170	0.00
170-180	0.00

Light Distribution Curve [Unit:cd]





C0(Max):

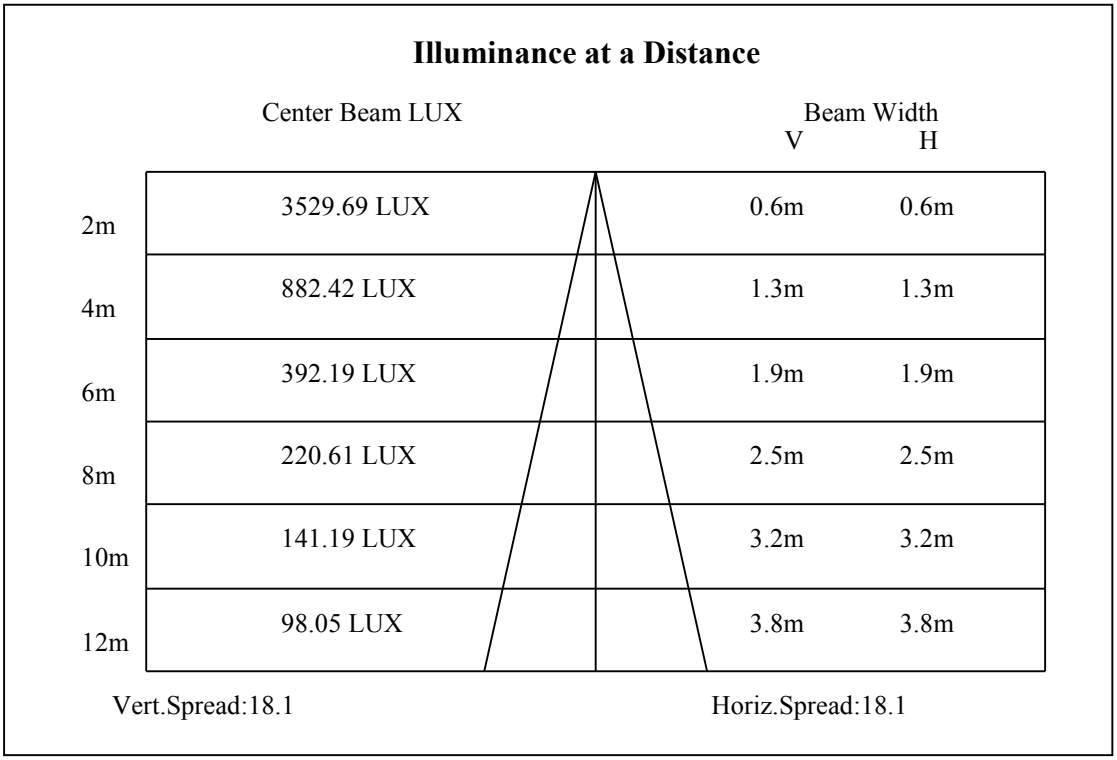
C0/C180:

C90/C270:

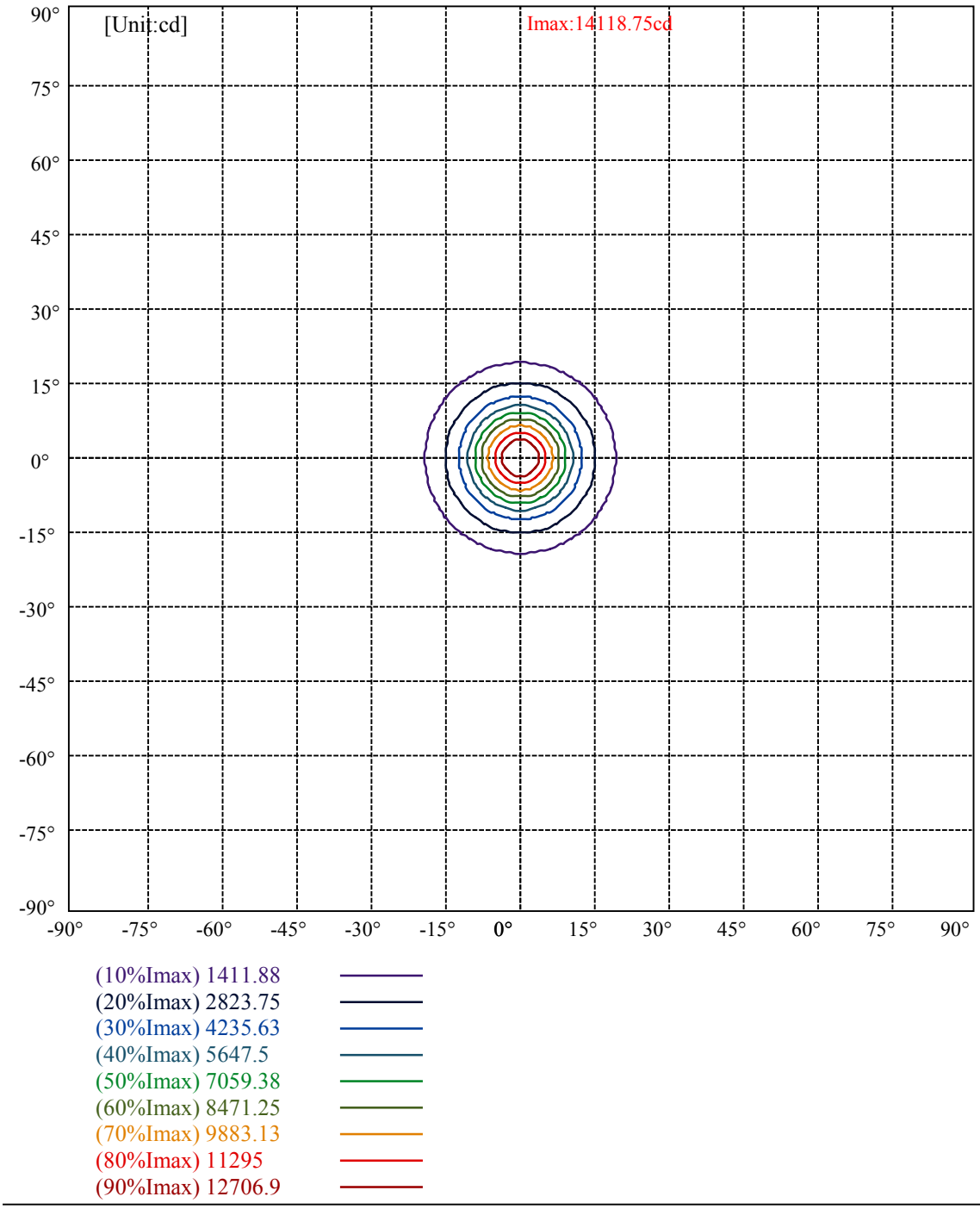
Field angle(10%Imax):C0/180Left:19.0 Right:19.0
:C90/270Left:19.0 Right:19.0

Beam Angle(50%Imax):C0/180Left:9.0 Right:9.0
:C90/270Left:9.0 Right:9.0

Lux distance Curve



ISO-Intensity(V-H)

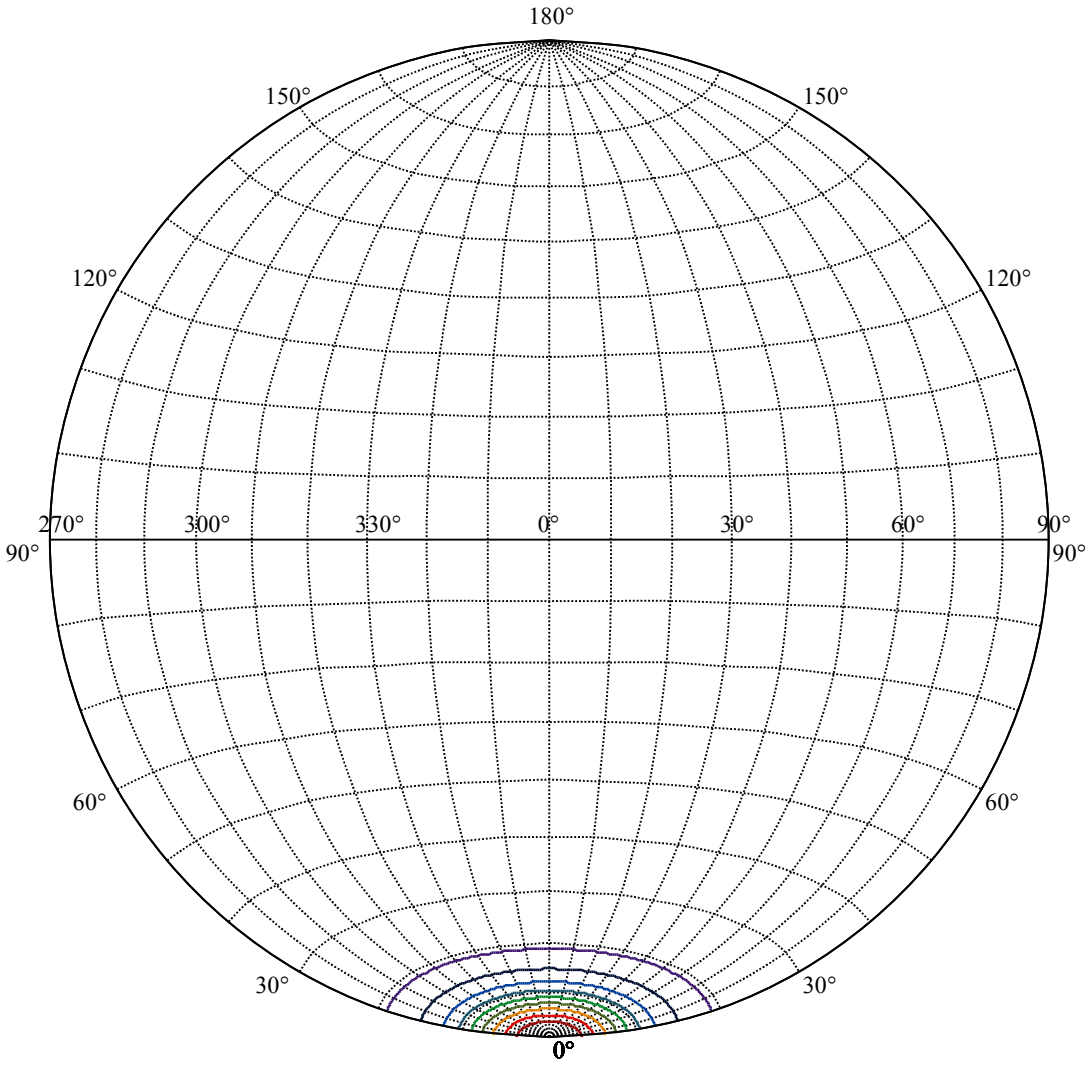


Equipment: 123
Temperature(°C): 25

Date: 2019/9/20
Humidity(%): 60%

Operator: 234

ISO candela diagram on circular web



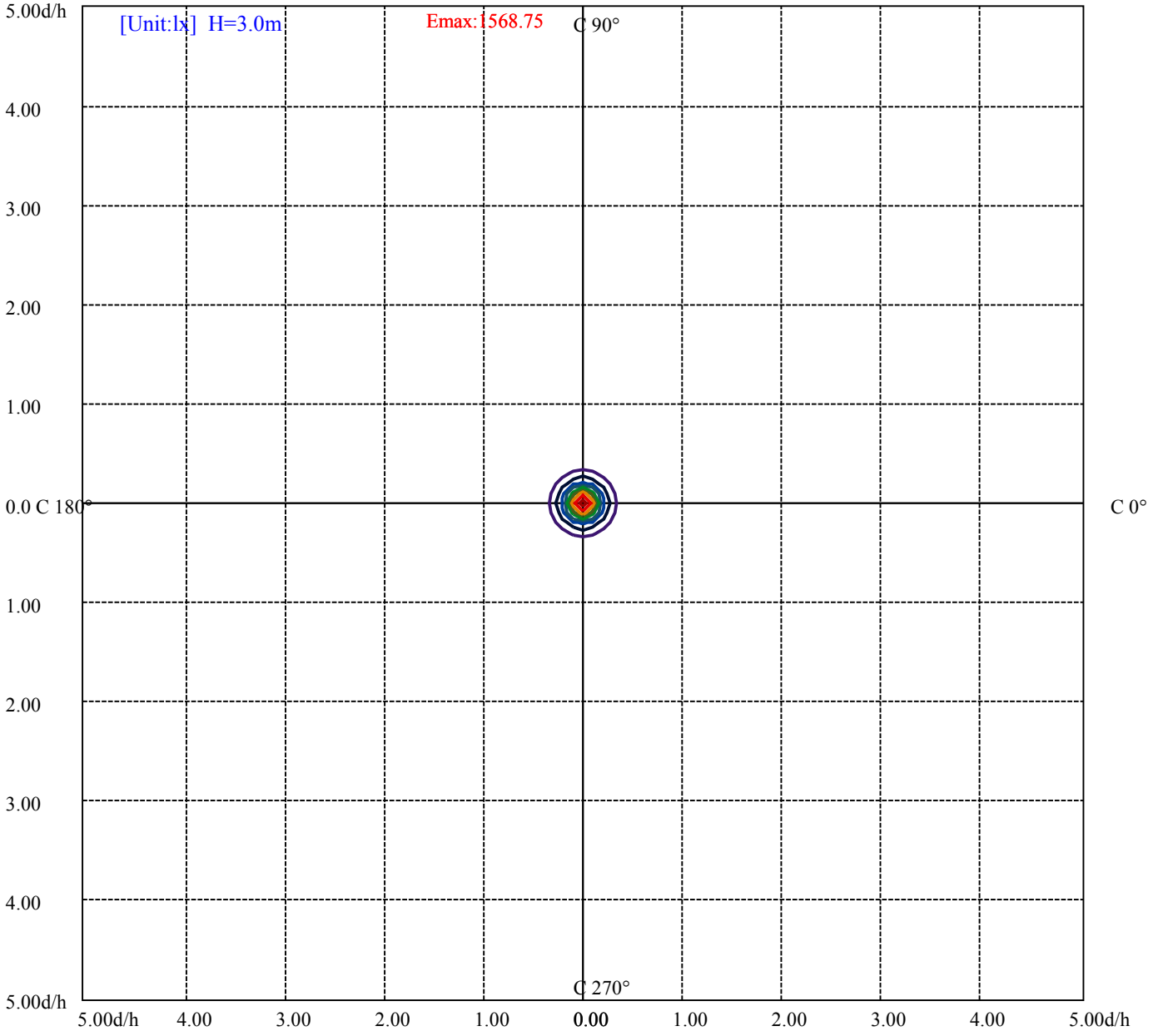
House [Unit:cd] Road

Imax:14118.75

(10%Imax) 1411.88
(20%Imax) 2823.75
(30%Imax) 4235.63
(40%Imax) 5647.5
(50%Imax) 7059.38
(60%Imax) 8471.25
(70%Imax) 9883.13
(80%Imax) 11295
(90%Imax) 12706.9

Equipment: 123 Date: 2019/9/20 Operator: 234
Temperature(°C): 25 Humidity(%): 60%

ISO illuminance diagram

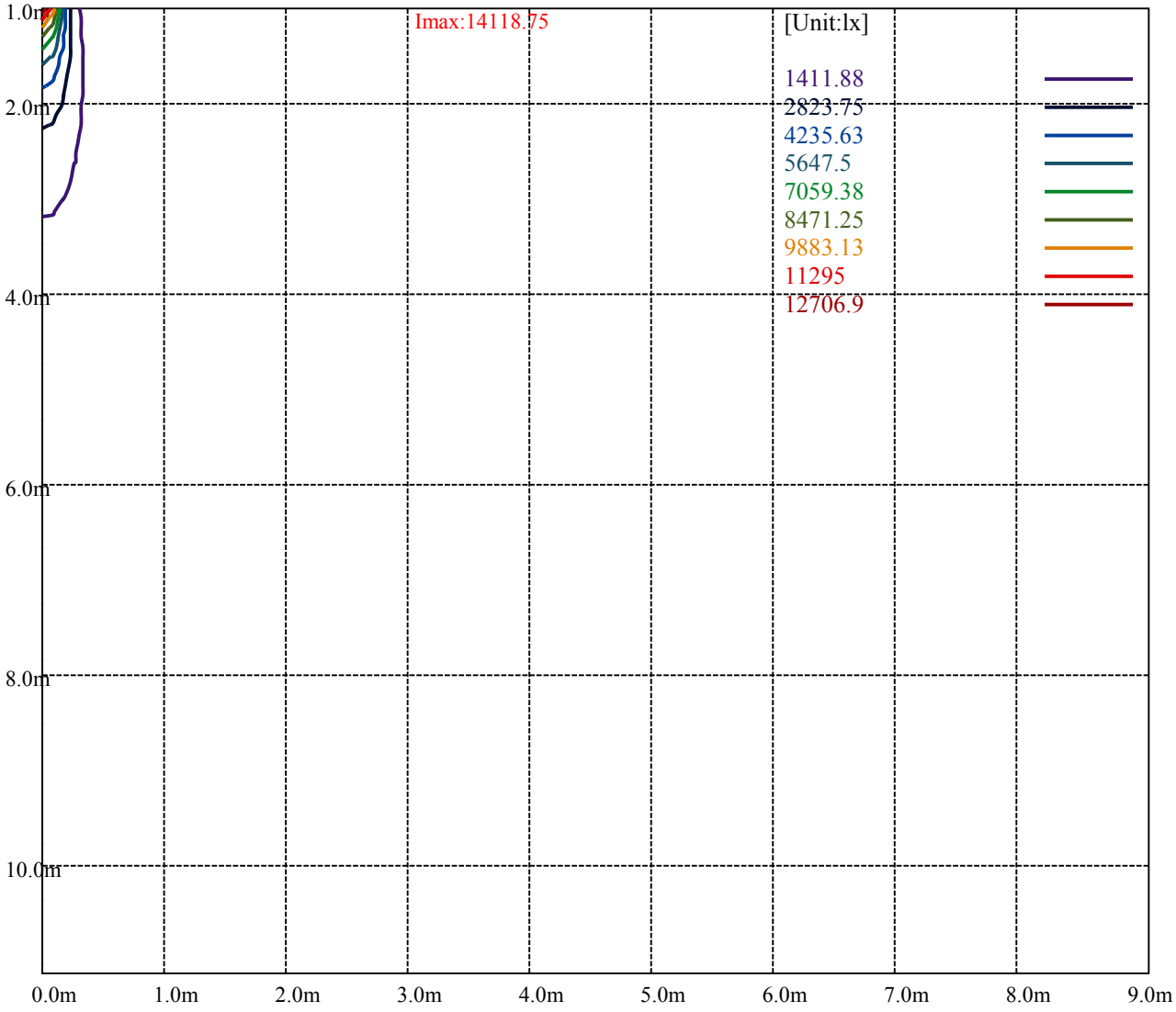


Equipment: 123
Temperature(°C): 25

Date: 2019/9/20
Humidity(%): 60%

Operator: 234

Space ISO Lux diagram



Equipment: 123
Temperature(°C): 25

Date: 2019/9/20
Humidity(%): 60%

Operator: 234

Luminance Limitting Curve(no luminous side)

Luminance Table

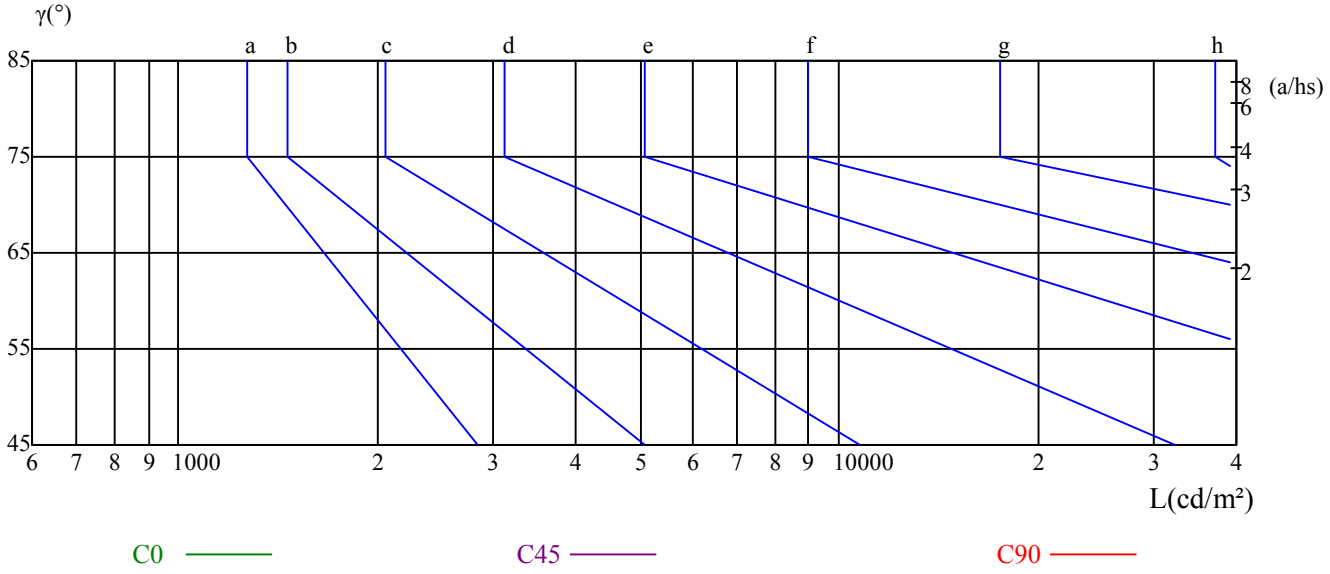
γ	45	50	55	60	65	70	75	80	85
C0	0	0	0	0	0	0	0	0	0
C45	0	0	0	0	0	0	0	0	0
C90	0	0	0	0	0	0	0	0	0

L(Hor)(65)	L(Ver)(65)	L45(65)	L(Hor)(75)	L(Ver)(75)	L45(75)	L(Hor)(85)	L(Ver)(85)	L45(85)
0	0	0	0	0	0	0	0	0

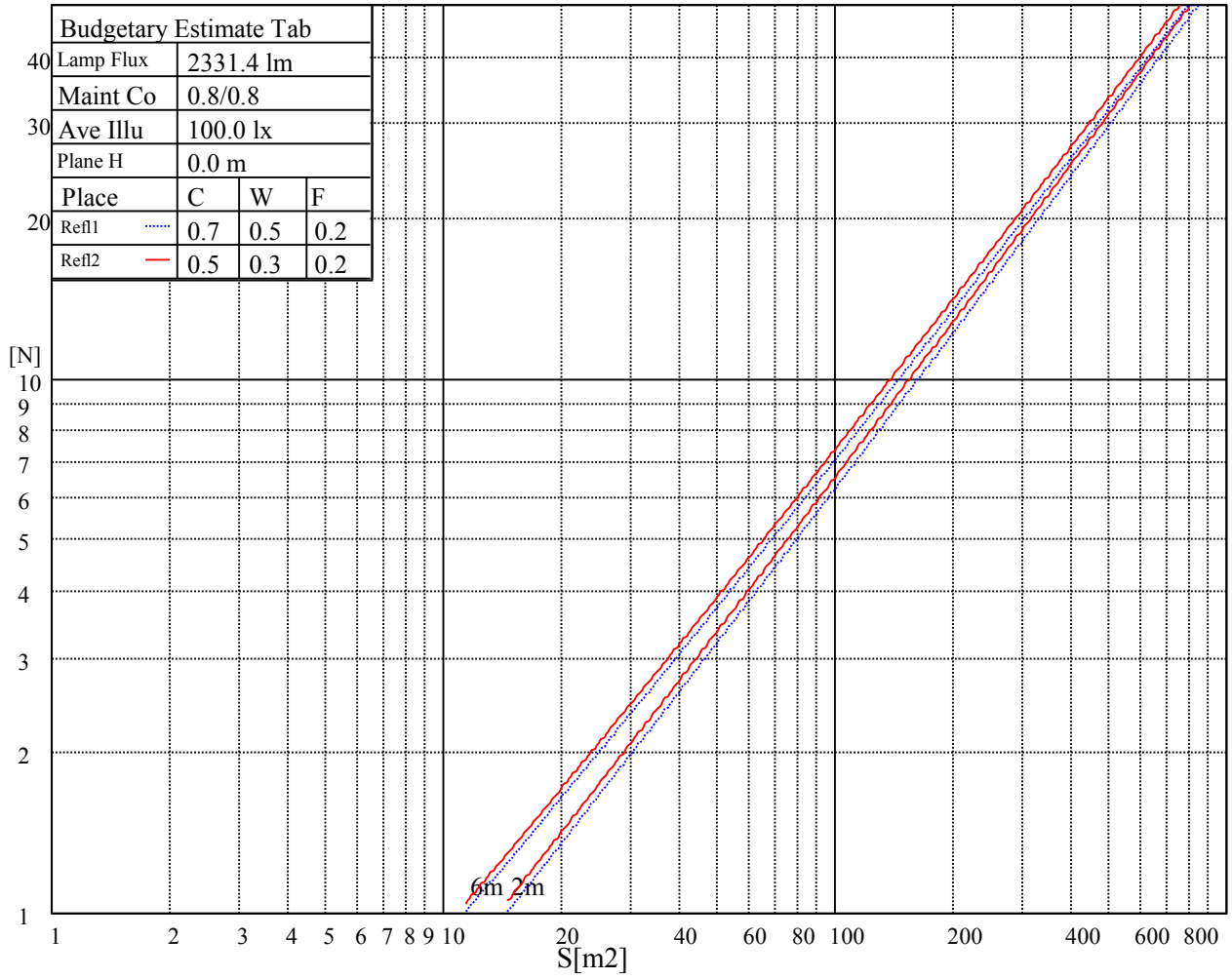
Glare Table

Glare	Quality	Service Values Illuminance(lx)							
1.15	A	2000	1000	500	<=300				
1.5	B		2000	1000	500	<=300			
1.85	C			2000	1000	500	<=300		
2.2	D				2000	1000	500	<=300	
2.55	E					2000	1000	500	<=300
		a	b	c	d	e	f	g	h

Luminance Limitting Curve



Budgetary Estimate Table

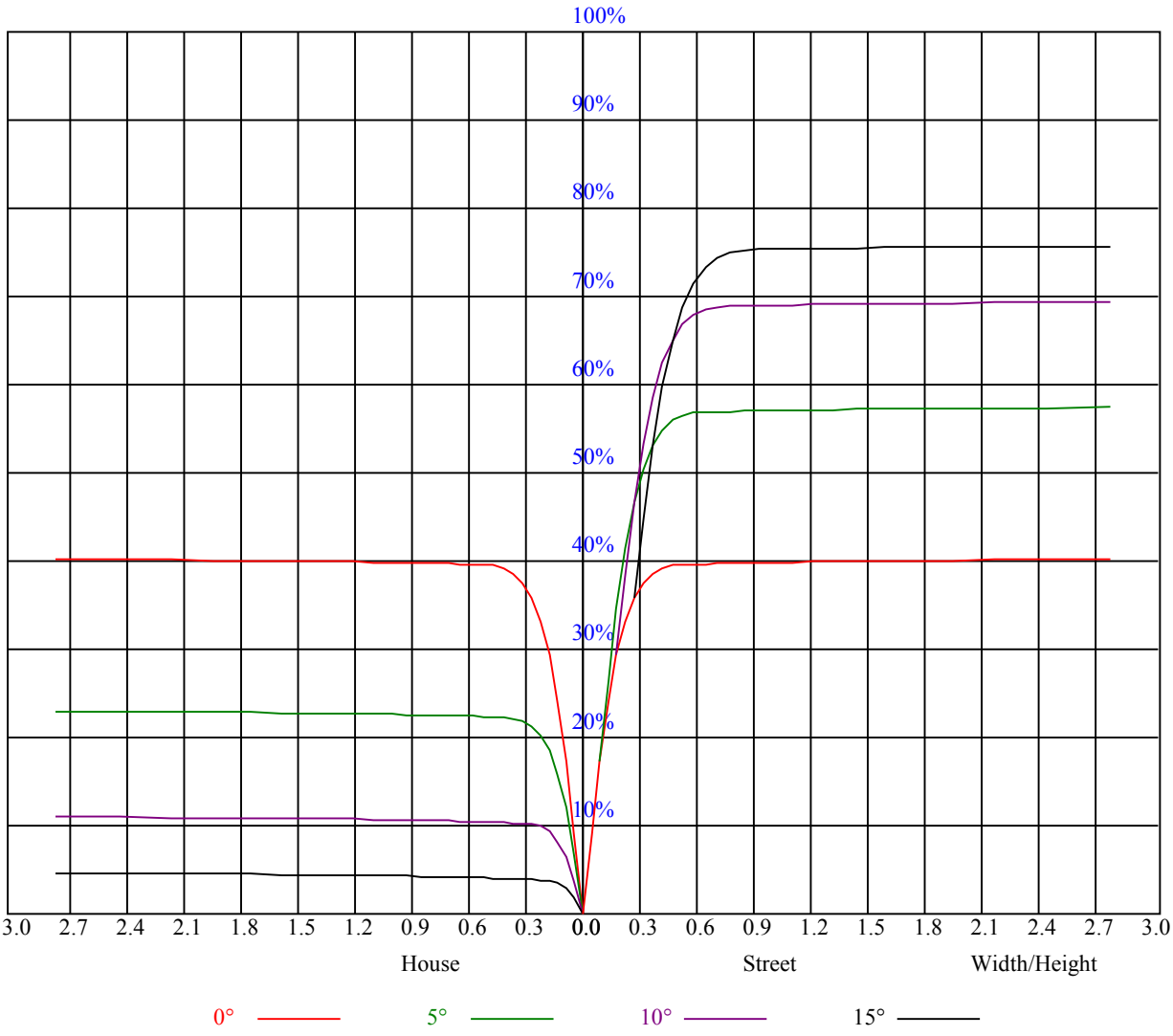


Equipment: 123 Date: 2019/9/20 Operator: 234
Temperature(°C): 25 Humidity(%): 60%

Utilization factor table for indoor luminaire

RHOCC	80			70			50			30			10			0
RHOW	50	30	10	50	30	10	50	30	10	50	30	10	50	30	10	0
RCR	COEFFCIENTS OF UTILIZATION RHOFC=20 CU															
0	0.96	0.96	0.96	0.94	0.94	0.94	0.90	0.90	0.90	0.86	0.86	0.86	0.83	0.83	0.83	0.81
1	0.92	0.90	0.89	0.90	0.89	0.87	0.87	0.86	0.85	0.84	0.83	0.82	0.81	0.80	0.80	0.78
2	0.88	0.85	0.84	0.86	0.84	0.83	0.84	0.82	0.81	0.82	0.80	0.79	0.79	0.78	0.78	0.76
3	0.85	0.82	0.80	0.83	0.81	0.79	0.82	0.80	0.78	0.80	0.78	0.77	0.78	0.77	0.76	0.75
4	0.82	0.79	0.77	0.81	0.78	0.76	0.79	0.77	0.75	0.78	0.76	0.75	0.77	0.75	0.74	0.73
5	0.79	0.76	0.74	0.79	0.76	0.74	0.77	0.75	0.73	0.76	0.74	0.73	0.75	0.73	0.72	0.71
6	0.77	0.74	0.72	0.77	0.74	0.72	0.76	0.73	0.71	0.75	0.73	0.71	0.74	0.72	0.71	0.70
7	0.75	0.72	0.70	0.75	0.72	0.70	0.74	0.72	0.70	0.73	0.71	0.69	0.73	0.71	0.69	0.68
8	0.74	0.71	0.69	0.73	0.70	0.69	0.73	0.70	0.68	0.72	0.70	0.68	0.71	0.69	0.68	0.67
9	0.72	0.69	0.67	0.72	0.69	0.67	0.71	0.69	0.67	0.71	0.68	0.67	0.70	0.68	0.67	0.66
10	0.71	0.68	0.66	0.70	0.68	0.66	0.70	0.67	0.66	0.69	0.67	0.66	0.69	0.67	0.65	0.65

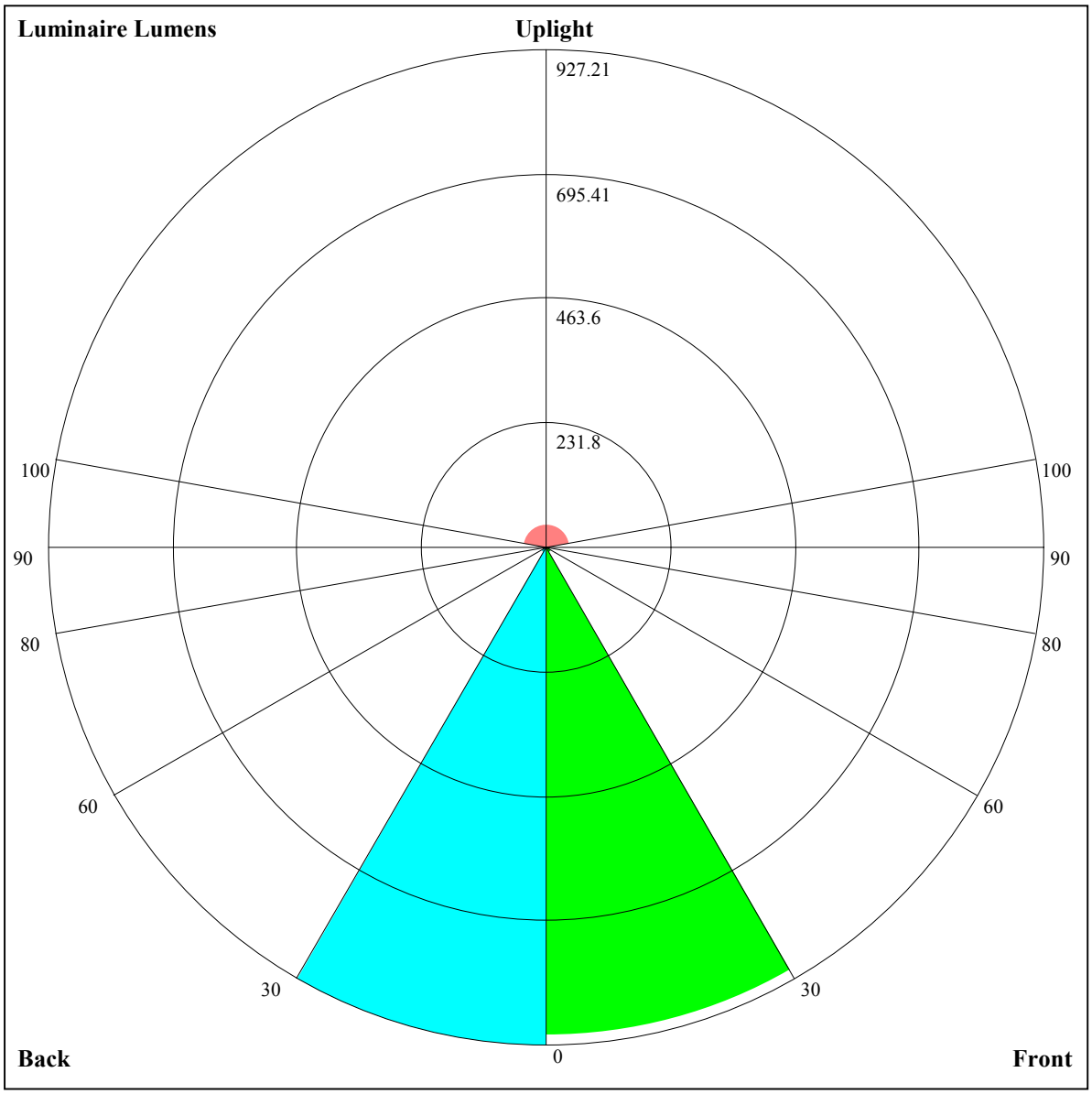
Coefficient Utilization Curve



Equipment: 123
Temperature(°C): 25

Date: 2019/9/20
Humidity(%): 60%

Operator: 234



Luminaire Lumens:
FL=909.89,FM=12.01,FH=8.98,FVH=4.7
BL=927.21,BM=12.07,BH=9,BVH=4.7
UL=9.38,UH=44.65

BUG Rating:B2-U2-G0

Intensity data(cd)

C/γ(°)	0.0	1.0	2.0	3.0	4.0	5.0	6.0	7.0	8.0
0.0	14107.50	14113.13	13910.63	13516.88	12740.63	11705.63	10665.00	9410.63	8319.38
45.0	14101.88	13995.00	13663.13	12931.88	11190.38	11046.94	9826.31	8576.44	7535.25
90.0	14118.75	14056.88	13786.88	13263.75	12470.63	11418.75	10209.38	8977.50	7914.38
135.0	14146.88	14068.13	13803.75	13353.75	12583.13	11565.00	10552.50	9320.63	8251.88
180.0	14107.50	13966.88	13657.50	13016.25	12296.25	11141.44	10236.94	9028.69	7981.31
225.0	14101.88	14073.75	13871.25	13494.38	12853.13	11958.75	11019.38	9849.38	8786.25
270.0	14118.75	14062.50	13882.50	13370.63	12706.88	10978.88	10541.81	9473.63	8385.75
315.0	14146.88	14085.00	13871.25	13308.75	12560.63	11144.25	10336.50	9223.88	8129.25
360.0	14107.50	14113.13	13910.63	13516.88	12740.63	11705.63	10665.00	9410.63	8319.38

C/γ(°)	9.0	10.0	11.0	12.0	13.0	14.0	15.0	16.0	17.0
0.0	7188.75	6170.63	5360.63	4618.13	3853.13	3335.63	2891.25	2436.19	2112.19
45.0	6480.00	5523.75	4767.19	4032.56	3492.00	2981.81	2550.94	2206.13	1864.13
90.0	6817.50	5805.00	5011.88	4303.13	3571.88	3088.13	2874.38	2318.63	1923.75
135.0	7115.63	6063.75	5225.63	4466.25	3678.75	3166.88	2885.63	2276.44	1968.75
180.0	6867.56	5842.13	5025.94	4175.44	3660.75	3105.56	2597.63	2292.75	1970.44
225.0	7655.63	6586.88	5703.75	4815.00	4061.25	3498.75	3031.88	2874.38	2201.06
270.0	7219.69	6168.38	5320.13	4494.94	3800.81	3280.50	2793.94	2428.31	2058.75
315.0	6886.69	5968.13	5149.69	4266.56	3753.00	3191.06	2670.75	2355.75	2037.38
360.0	7188.75	6170.63	5360.63	4618.13	3853.13	3335.63	2891.25	2436.19	2112.19

C/γ(°)	18.0	19.0	20.0	21.0	22.0	23.0	24.0	25.0	26.0
0.0	1814.63	1545.75	1240.88	1012.50	788.63	562.50	365.06	287.44	103.33
45.0	1558.13	1103.96	1074.49	768.77	593.94	411.47	259.20	125.49	55.29
90.0	1636.88	1383.75	1084.50	862.31	654.75	446.63	288.56	152.49	67.50
135.0	1672.88	1408.50	1092.94	853.88	618.75	438.75	285.19	208.29	64.86
180.0	1569.38	1260.56	1105.37	849.49	615.99	438.98	283.78	141.02	69.08
225.0	1888.31	1637.44	1296.00	1056.94	861.19	576.00	392.06	295.88	123.92
270.0	1719.00	1455.19	1118.98	915.92	702.00	508.44	286.93	181.35	96.30
315.0	1673.44	1420.88	1114.31	914.96	674.61	481.73	315.73	163.58	79.03
360.0	1814.63	1545.75	1240.88	1012.50	788.63	562.50	365.06	287.44	103.33

C/γ(°)	27.0	28.0	29.0	30.0	31.0	32.0	33.0	34.0	35.0
0.0	38.31	20.93	18.79	17.33	15.92	14.74	14.01	13.11	12.49
45.0	22.56	19.52	17.72	16.26	15.13	14.18	13.33	12.71	12.21
90.0	30.99	20.64	18.73	17.27	15.98	14.91	14.06	13.33	12.66
135.0	26.44	20.36	18.39	16.99	15.98	14.74	13.95	13.28	12.66
180.0	29.25	19.41	17.66	16.37	15.19	14.18	13.44	12.83	12.32
225.0	51.98	22.73	18.73	17.44	15.98	14.74	13.95	13.22	12.60
270.0	36.28	20.19	18.51	16.93	15.75	14.63	13.78	13.11	12.54
315.0	32.46	20.98	18.96	17.44	16.03	14.91	14.06	13.28	12.66
360.0	38.31	20.93	18.79	17.33	15.92	14.74	14.01	13.11	12.49

C/γ(°)	36.0	37.0	38.0	39.0	40.0	41.0	42.0	43.0	44.0
0.0	11.98	11.59	11.14	10.91	10.69	10.46	10.24	10.13	9.96
45.0	11.70	11.31	11.03	10.74	10.46	10.29	10.13	9.96	9.90
90.0	12.15	11.70	11.36	11.03	10.80	10.52	10.35	10.18	10.07
135.0	12.26	11.81	11.42	11.14	10.91	10.69	10.46	10.29	10.18
180.0	11.87	11.48	11.19	10.86	10.69	10.46	10.29	10.13	10.01
225.0	12.09	11.76	11.31	11.03	10.80	10.58	10.35	10.24	10.07
270.0	12.04	11.64	11.36	10.97	10.74	10.52	10.35	10.18	10.01
315.0	12.15	11.70	11.36	10.97	10.74	10.52	10.35	10.18	10.07
360.0	11.98	11.59	11.14	10.91	10.69	10.46	10.24	10.13	9.96

Intensity data(cd)

C/γ(°)	45.0	46.0	47.0	48.0	49.0	50.0	51.0	52.0	53.0
0.0	9.90	9.79	9.68	9.62	9.56	9.45	9.39	9.34	9.28
45.0	9.79	9.68	9.62	9.51	9.45	9.34	9.28	9.23	9.23
90.0	9.96	9.84	9.73	9.68	9.62	9.51	9.45	9.39	9.28
135.0	10.07	9.96	9.90	9.79	9.68	9.62	9.56	9.51	9.45
180.0	9.90	9.84	9.73	9.68	9.56	9.51	9.45	9.39	9.34
225.0	9.90	9.84	9.73	9.62	9.56	9.51	9.39	9.39	9.28
270.0	9.90	9.79	9.68	9.62	9.51	9.45	9.34	9.34	9.23
315.0	9.96	9.84	9.73	9.62	9.56	9.45	9.39	9.34	9.34
360.0	9.90	9.79	9.68	9.62	9.56	9.45	9.39	9.34	9.28

C/γ(°)	54.0	55.0	56.0	57.0	58.0	59.0	60.0	61.0	62.0
0.0	9.23	9.23	9.17	9.11	9.06	9.06	9.00	9.00	8.94
45.0	9.17	9.11	9.06	9.06	9.00	8.94	8.94	8.89	8.89
90.0	9.28	9.23	9.17	9.11	9.06	9.06	9.00	8.94	8.78
135.0	9.39	9.34	9.28	9.17	9.17	9.11	9.11	9.06	9.06
180.0	9.23	9.17	9.17	9.11	9.06	9.06	9.00	9.00	8.94
225.0	9.23	9.23	9.11	9.11	9.06	9.00	9.00	8.94	8.94
270.0	9.17	9.11	9.06	9.06	9.00	8.94	8.94	8.89	8.83
315.0	9.28	9.17	9.17	9.11	9.06	9.00	9.00	8.94	8.89
360.0	9.23	9.23	9.17	9.11	9.06	9.06	9.00	9.00	8.94

C/γ(°)	63.0	64.0	65.0	66.0	67.0	68.0	69.0	70.0	71.0
0.0	8.89	8.89	8.83	8.83	8.83	8.83	8.83	8.78	8.78
45.0	8.89	8.83	8.83	8.78	8.78	8.78	8.72	8.72	8.72
90.0	9.06	8.89	8.83	8.83	8.83	8.78	8.78	8.78	8.72
135.0	9.00	8.94	8.94	8.89	8.89	8.83	8.78	8.78	8.83
180.0	8.94	8.89	8.89	8.83	8.83	8.83	8.83	8.83	8.83
225.0	8.89	8.89	8.83	8.83	8.78	8.78	8.78	8.78	8.72
270.0	8.83	8.78	8.78	8.78	8.72	8.72	8.72	8.66	8.66
315.0	8.89	8.89	8.83	8.83	8.78	8.78	8.72	8.72	8.72
360.0	8.89	8.89	8.83	8.83	8.83	8.83	8.83	8.78	8.78

C/γ(°)	72.0	73.0	74.0	75.0	76.0	77.0	78.0	79.0	80.0
0.0	8.78	8.72	8.72	8.72	8.72	8.72	8.72	8.72	8.72
45.0	8.72	8.66	8.66	8.66	8.66	8.66	8.66	8.66	8.61
90.0	8.72	8.72	8.66	8.66	8.66	8.61	8.66	8.66	8.66
135.0	8.78	8.78	8.78	8.72	8.72	8.66	8.66	8.66	8.66
180.0	8.78	8.78	8.72	8.72	8.78	8.72	8.72	8.72	8.72
225.0	8.72	8.72	8.66	8.66	8.66	8.66	8.66	8.66	8.61
270.0	8.66	8.66	8.61	8.61	8.61	8.61	8.61	8.61	8.61
315.0	8.72	8.72	8.72	8.66	8.66	8.66	8.66	8.66	8.66
360.0	8.78	8.72	8.72	8.72	8.72	8.72	8.72	8.72	8.72

C/γ(°)	81.0	82.0	83.0	84.0	85.0	86.0	87.0	88.0	89.0
0.0	8.72	8.72	8.72	8.72	8.78	8.83	8.61	8.66	8.61
45.0	8.61	8.61	8.61	8.61	8.61	8.61	8.61	8.61	8.61
90.0	8.61	8.61	8.61	8.61	8.61	8.66	8.61	8.55	8.55
135.0	8.66	8.66	8.66	8.66	8.66	8.72	8.61	8.61	8.61
180.0	8.72	8.72	8.66	8.78	8.78	8.72	8.61	8.61	8.61
225.0	8.61	8.66	8.66	8.61	8.61	8.66	8.61	8.61	8.61
270.0	8.61	8.61	8.55	8.55	8.55	8.55	8.55	8.55	8.55
315.0	8.66	8.66	8.61	8.61	8.66	8.61	8.61	8.61	8.61
360.0	8.72	8.72	8.72	8.72	8.78	8.83	8.61	8.66	8.61

Intensity data(cd)

C/γ(°)	90.0
0.0	8.61
45.0	8.61
90.0	8.55
135.0	8.61
180.0	8.66
225.0	8.61
270.0	8.55
315.0	8.61
360.0	8.61